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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/492,802 | 01/28/2000 | Jong Hoon Yi | 2658-0183P | 1395 |

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EXAMINER

CHUNG, DAVID Y

| | |
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| ART UNIT | PAPER NUMBER |
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2871

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/492,802

Applicant(s)

YI ET AL.

Examiner

David Y. Chung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. Claims 1-4, 6-16, 18-22, 25 and 26 rejected under 35 U.S.C. 102(e) as being anticipated by Kashiwazaki et al. (U.S. 5,922,401).

As to claim 1, 10, 13, 15 and 19 Kashiwazaki et al. discloses a TFT color liquid crystal display with the color filter formed on the TFT substrate. See figure 4. Note TFT 109, comprising: gate electrode 102, gate insulator 103, amorphous silicon layer 104, ohmic contact layer 106, source electrode 107 and drain electrode 108. Light-shielding

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layer 111 is interpreted as being a barrier rib during the manufacturing of the color filter 113 shown in figures 5A-5K. Color filter 113 is formed via an ink-jet printing system.

As to claims 2, 11 and 22, Kashiwazaki et al. discloses forming light-shielding layer 111 by applying a black pigment containing resist. See example 13. This black resist is a low reflective layer.

As to claims 3 and 16, Kashiwazaki et al. discloses forming a contact hole in the light-shielding layer in order to connect pixel electrode 114 to drain electrode 108.

As to claims 4 and 12, the light-shielding layer of Kashiwazaki et al. prevents light leakage in addition to acting as a barrier rib during the manufacturing of the color filter.

As to claims 6 and 18, Kashiwazaki et al. discloses forming the pixel electrode 114 on color filter 113 as shown in figure 4.

As to claims 7, 8, 14, 20 and 21, Kashiwazaki et al. discloses that portions of the light-shielding layer corresponding to aperture areas 120 were removed by development. This would leave stripe-shaped portions overlapping the gate and data lines. The stripe-shaped portions overlapping the data lines define column areas that include the pixel cells in which the color filters are formed.

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As to claim 9, all liquid crystal displays inherently have a second substrate opposing the first substrate, with liquid crystal between the two substrates.

As to claims 25 and 26, each limitation recites forming a specific structural element shown in figure 4 of Kashiwazaki et al. The claims are therefore anticipated.

2. Claims 1, 2, 7-11, 13-15, 19-22, 25 and 26 rejected under 35 U.S.C. 102(e) as being anticipated by Izumi (U.S. 6,417,898).

As to claims 1, 10, 13, 15 and 19, Izumi discloses a liquid crystal display device with the color filter disposed on the active matrix substrate. See figure 1. Note scanning line 6, signal line 7, and pixel electrode 9. Note TFT 8, comprising: gate electrode 21, gate insulating film 22, semiconductor layer 23, source electrode 24 and drain electrode 25. Insulating layer 11 is interpreted as being a barrier rib during formation of the color filters as shown in figures 4(a)-4(d). Izumi discloses in column 6, lines 37 – 52 that various methods including ink jetting can be used to form the color filter.

As to claims 2, 11 and 22, Izumi discloses that the insulating layer 11 is produced by material such as SiN or acrylic resin. See column 5, lines 1 – 7. An acrylic resin insulating layer is a low reflective layer.

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As to claims 7, 8, 14, 20 and 21, figure 2 of Izumi shows that the insulating layer 11 has stripe-shaped portions arranged so as to overlap both the data lines and gate lines. Furthermore, these stripe-shaped portions define column areas that include the pixel cells in which the color filters are formed.

As to claim 9, all liquid crystal displays inherently have a second substrate opposing the first substrate, with liquid crystal between the two substrates.

As to claims 25 and 26, each limitation recites forming a specific structural element shown in figure 1 of Izumi. The claims are therefore anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5, 17 and 23-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al. (U.S. 5,922,401).

As to claims 5 and 17, Kashiwazaki et al. does not disclose forming the color filter over an insulating layer. However, it was well known and obvious to do this in

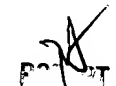
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order to prevent ions from migrating from the substrate into the liquid crystal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form the color filter over an insulating layer in order to prevent ion migration.

As to claims 23 and 24, Kashiwazaki et al. does not disclose patterning the light-shielding layer, and then using it as a mask to form the source and drain electrodes. However, this was well known and obvious as a way of simplifying the manufacturing process. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form the source and drain electrodes using the light-shielding layer as a mask in order to simplify the manufacturing process.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (703) 306-0155. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.


DAVID CHUNG
SUPERVISOR
TECHNICAL
EXAMINER
2871
2000

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02/07/03